

WHAT IS CLAIMED IS:

1. A contactless identification tag, comprising:
a capacitor; and
means for varying an electrostatic capacity of the capacitor according to
an externally applied compression force.
2. The contactless identification tag according to claim 1, further
comprising a dielectric substrate with an antenna coil that sends and receives
an electromagnetic wave.
3. The contactless identification tag according to claim 2, wherein
the capacitor includes a resonant circuit with an antenna coil.
4. The contactless identification tag according to claim 3, further
comprising a data processing section that processes data sent and received
through the electromagnetic wave.
5. The contactless identification tag according to claim 4, wherein
the means for varying an electrostatic capacity changes the electrostatic
capacity to a value that makes a resonant frequency of the resonant circuit not
optimum for sending and receiving the electromagnetic wave in one of a state in
which the compression force is not applied and a state in which the compression
force is applied, and changes the electrostatic capacity to a value that makes the
resonant frequency of the resonant circuit optimum for sending and receiving
the electromagnetic wave in the state in which the compression force is not
applied and the state in which the compression force is applied.

6. The contactless identification tag according to claim 4, wherein the means for varying an electrostatic capacity variable changes the electrostatic capacity by changing an opposing area of electrode conductors that compose the capacitor.

7. The contactless identification tag according to claim 6, wherein the capacitor is equipped with a first electrode conductor provided on one surface of the dielectric substrate, a second electrode conductor that is insulated from the first electrode conductor and is provided on the one surface of the dielectric substrate, and a third electrode conductor provided on another surface of the dielectric substrate opposite to the first electrode conductor and the second electrode conductor with the dielectric substrate being interposed in between, and

the means for varying an electrostatic capacity is equipped with a conductive member that makes the first electrode conductor and the second electrode conductor to be conductively connected according to the compression force, and changes the opposing area by switching a conductive state and a nonconductive state between the first electrode conductor and the second electrode conductor by the conductive member.

8. The contactless identification tag according to claim 7, wherein the conductive member is composed of a material having an elasticity, which is disposed opposite to both of the first electrode conductor and the second electrode conductor, elastically deforms upon application of the compression force so as to be able to contact both of the first electrode conductor and the second electrode conductor, and elastically returns upon removal of the compression force so as to be separated from at least one of the first electrode conductor and the second electrode conductor.

9. The contactless identification tag according to claim 6, wherein the capacitor is equipped with a first electrode conductor provided on one surface of the dielectric substrate and a second electrode conductor provided on another surface of the dielectric substrate opposite to the first electrode conductor with the dielectric substrate being interposed in between, and

the second electrode conductor is composed of an elastically deformable material, and the opposing surface thereof with the first electrode conductor becomes larger when the compression force is applied than when the compression force is not applied.

10. The contactless identification tag according to claim 6, wherein the means for varying an electrostatic capacity changes the electrostatic capacity by changing a face-to-face gap between the electrode conductors that compose the capacitor.

11. The contactless identification tag according to claim 10, wherein the capacitor is equipped with a first electrode conductor provided on one surface of the dielectric substrate and a second electrode conductor disposed opposite to the first electrode conductor with the dielectric substrate being interposed in between and spaced by a gap from another surface of the dielectric substrate, and

the means for varying an electrostatic capacity is equipped with a conductive member that supports the second electrode conductor in a manner approachable to the other surface of the dielectric substrate according to the compression force and maintains a conductive state with the resonant circuit, and changes the face-to-face gap by switching with the conductive member an approached state and a removed state between the second electrode conductor and the other surface of the dielectric substrate.

12. The contactless identification tag according to claim 11, wherein the conductive member is composed of a material having an elasticity, elastically deforming upon application of the compression force such that the second electrode conductor approaches the other surface of the dielectric substrate, and elastically returning upon removal of the compression force such that the second electrode conductor parts away from the other surface of the dielectric substrate.

13. The contactless identification tag according to claim 10, wherein the capacitor is equipped with a first electrode conductor provided on one surface of the dielectric substrate and a second electrode conductor disposed opposite to the first electrode conductor with the dielectric substrate being interposed in between and spaced by a gap from another surface of the dielectric substrate, and

the second electrode conductor is composed of a material having an elasticity, a leg section conductive to the resonant circuit, and an electrode section that is supported by the leg section, elastically deforming upon application of the compression force such that the electrode section approaches the other surface of the dielectric substrate, and elastically returning upon removal of the compression force such that the electrode section parts away from the other surface of the dielectric substrate.

14. A contactless identification tag, comprising:
a capacitor; and
an electrostatic capacity variable device that varies an electrostatic capacity of the capacitor according to an externally applied compression force.

15. The contactless identification tag according to claim 14, wherein the electrostatic capacity variable device changes the electrostatic capacity to a value that makes a resonant frequency of the resonant circuit not optimum for sending and receiving the electromagnetic wave in one of a state in which a compression force is not applied and a state in which the compression force is applied, and changes the electrostatic capacity to a value that makes the resonant frequency of the resonant circuit optimum for sending and receiving the electromagnetic wave in the state in which the compression force is not applied and the state in which the compression force is applied.

16. The contactless identification tag according to claim 14, wherein the electrostatic capacity variable changes the electrostatic capacity by changing an opposing area of electrode conductors that compose the capacitor.

17. The contactless identification tag according to claim 16, wherein the capacitor is equipped with a first electrode conductor provided on one surface of the dielectric substrate, a second electrode conductor that is insulated from the first electrode conductor and is provided on the one surface of the dielectric substrate, and a third electrode conductor provided on another surface of the dielectric substrate opposite to the first electrode conductor and the second electrode conductor with the dielectric substrate being interposed in between, and

the electrostatic capacity variable device is equipped with a conductive member that makes the first electrode conductor and the second electrode conductor to be conductively connected according to the compression force, and changes the opposing area by switching a conductive state and a nonconductive state between the first electrode conductor and the second electrode conductor by the conductive member.

18. The contactless identification tag according to claim 17, wherein the conductive member is composed of a material having an elasticity, which is disposed opposite to both of the first electrode conductor and the second electrode conductor, elastically deforms upon application of the compression force so as to be able to contact both of the first electrode conductor and the second electrode conductor, and elastically returns upon removal of the compression force so as to be separated from at least one of the first electrode conductor and the second electrode conductor.

19. The contactless identification tag according to claim 16, wherein the capacitor is equipped with a first electrode conductor provided on one surface of the dielectric substrate and a second electrode conductor provided on another surface of the dielectric substrate opposite to the first electrode conductor with the dielectric substrate being interposed in between, and

the second electrode conductor is composed of an elastically deformable material, and the opposing surface thereof with the first electrode conductor becomes larger when the compression force is applied than when the compression force is not applied.

20. A method for manufacturing a contactless identification tag, comprising:

depositing a dielectric substrate having an antenna coil that sends and receives an electromagnetic wave;

composing a capacitor with a resonant circuit and the antenna coil;

processing data sent and received through the electromagnetic wave;

and

varying an electrostatic capacity of the capacitor according to an externally applied compression force.